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10/073,290	02/13/2002	James Howard Eaton	TUC920010098US1	3506

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EXAMINER	
WONG, KIN C	
ART UNIT	**PAPER NUMBER**
2651	3

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/073,290	Applicant(s) EATON ET AL.	
	Examiner K. Wong	Art Unit 2651	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 February 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims (1-4, 8-11, 15-18, and 22-24) are rejected under 35 U.S.C. 102(e) as being anticipated by Molstad et al (6542325).

Regarding claim 1: Molstad et al discloses a servo writer (as depicted in figures 7 and 8) for generating a linear servo track timing based servo pattern (see col. 1, lines 6-10 and col. 2, lines 29-47 of Molstad et al) in a linear direction on a linear data storage medium, the timing based servo pattern included of a repeating cyclic periodic sequence of transitions of two different azimuthal orientations (elements 312 and 314 as depicted in figure 6B of Molstad et al) that extend laterally of the linear servo track, the timing based servo track sensed during movement of the linear data storage medium (tape) in the linear direction by determining lateral positioning with respect to the linear servo track based on a measure of time between two the transitions having different azimuthal orientation (see col. 8, line 27 to col. 9, line 43 of Molstad et al) as compared to time between two the transitions having parallel azimuthal orientation (elements 312

and 316 as depicted in figure 6B and see the associated descriptions for details), the generator including:

at least three spaced apart write elements (as depicted in figures 7 and 8), two the write elements of parallel azimuthal orientation (elements 452 and 454 in figure 8), and at least one of the write element of a different azimuthal orientation (element 453 in figure 8) than the two write elements of parallel azimuthal orientation;

a drive (tape drive) for moving the linear data storage medium in the linear direction across the write elements; and

a source of timed pulses (element 518 in figure 9) coupled to the write elements and providing timed pulses to cause the spaced apart write elements to simultaneously write, thereby writing patterns of transitions on the linear data storage medium corresponding to the spaced apart write elements as the drive moves the linear data storage medium across the write elements, whereby the spaced apart write elements fix a distance between the simultaneously written transitions having different azimuthal orientation and fix a distance between the simultaneously written transitions having parallel azimuthal orientation (in col. 12, line 51 to col. 13, line 9; col. 13, lines 18-67 and col. 14, lines 44-61 where Molstad et al describes the writing of the servo patterns with the simultaneously activations of the write gaps in the tape drive).

Regarding claim 2: Molstad et al depicted in figure 8 that wherein at least one of the write element of the different azimuthal orientation is located intermediate the two write elements of parallel azimuthal orientation.

Regarding claim 3: Molstad et al depicted in figure 9 that wherein the linear data storage medium comprises a magnetic tape (element 504 in figure 9), and wherein at least three spaced apart write elements each comprises a magnetic write gap arranged to provide a magnetic signal in response to the timed pulse, the magnetic signal writing a magnetic transition on the magnetic tape (see the associated descriptions for details).

Regarding claim 4: Molstad et al discloses a servo writer (as depicted in figures 7 and 8) for generating a linear servo track timing based servo pattern (see col. 1, lines 6-10 and col. 2, lines 29-47) in a linear direction on a linear data storage medium (tape), the timing based servo pattern comprised of a repeating cyclic periodic sequence of transitions of two different azimuthal orientations (elements 312 and 314 as depicted in figure 6B) that extend laterally of the linear servo track, the timing based servo track sensed during movement of the linear data storage medium in the linear direction by determining lateral positioning with respect to the linear servo track based on a measure of time between two the transitions having different azimuthal orientation (see col. 8, line 27 to col. 9, line 43) as compared to time between two the transitions having parallel azimuthal orientation (elements 312 and 316 as depicted in figure 6B), the generator including:

at least three spaced apart write elements (as depicted in figures 7 and 8), two the write elements of parallel azimuthal orientation (elements 452 and 454 in figure 8), and at least one the write element of a different azimuthal orientation (element 453 in figure 7) than the two write elements of parallel azimuthal orientation;

a drive (tape drive) for moving the linear data storage medium in the linear direction across the write elements; and

a source of timed pulses (element 518 in figure 9) coupled to the write elements and providing timed pulses to cause the spaced apart write elements to simultaneously write, thereby writing patterns of transitions on the linear data storage medium corresponding to the spaced apart write elements as the drive moves the linear data storage medium across the write elements, whereby the spaced apart write elements fix a distance between the simultaneously written transitions having different azimuthal orientation and fix a distance between the simultaneously written transitions having parallel azimuthal orientation, wherein the source of timed pulses provides sets of pulses to the write elements, each the set of pulses writing a pattern of the transitions, and spaces the sets of pulses to prevent overwriting of one the pattern of transitions by another (in col. 12, line 51 to col. 13, line 9; col. 13, lines 18-67 and col. 14, lines 44-61 where Molstad et al describes the writing of the servo patterns with the simultaneously activations of the write gaps in the tape drive).

Regarding claims 8-10: method claims (8-10) are drawn to the method of using the corresponding apparatus claimed in claims (1-3). Therefore method claims (8-10) correspond to apparatus claims (1-3) and are rejected for the same reasons of anticipation as used above.

Regarding claim 11: method claim (11) is drawn to the method of using the corresponding apparatus claimed in claim (4). Therefore method claim (11) corresponds

to apparatus claim (4) and is rejected for the same reasons of anticipation as used above.

Regarding claim 15: Molstad et al discloses a sensible transition pattern (as depicted in figure 6B) for recording servo information in a linear direction on a linear data storage medium (tape) defining at least one linear servo track (as depicted in figure 2), the sensible transition pattern comprised of a timing based servo pattern (see col. 1, lines 6-10 and col. 2, lines 29-47) of a repeating cyclic periodic sequence of transitions of two different azimuthal orientations (elements 312 and 314 as depicted in figure 6B) that extend laterally of the linear servo track, the timing based servo track sensed during movement of the linear data storage medium in the linear direction by determining lateral positioning with respect to the linear servo track based on a measure of time between two the transitions having different azimuthal orientation (see col. 8, line 27 to col. 9, line 43) as compared to time between two the transitions having parallel azimuthal orientation (elements 312 and 316 as depicted in figure 6B and see associated descriptions for details), including:

a repeating pattern (as depicted in figures 6A and 6B) of at least three spaced apart the transitions (as depicted in figures 2, 7 and 8) of the two different azimuthal (elements 312 and 314 as depicted in figure 6B) orientations that extend laterally of the linear servo track, two of the transitions of parallel azimuthal orientation (as depicted in 6B), and at least one of the transitions of a different azimuthal orientation (element 314 in figure 6B) than the two transitions of parallel azimuthal orientation; the at least three spaced apart the transitions simultaneously written to fix a distance between the

simultaneously written transitions having different azimuthal orientation and to fix a distance between the simultaneously written transitions having parallel azimuthal orientation, thereby defining a distance between the simultaneously written transitions having different azimuthal orientation and the distance between transitions having parallel azimuthal orientation (in col. 12, line 51 to col. 13, line 9; col. 13, lines 18-67 and col. 14, lines 44-61 where Molstad et al describes the writing of the servo patterns with the simultaneously activations of the write gaps in the tape drive).

Regarding claim 16: Molstad et al depicted in figures 6B and 8 that wherein at least one of the transition of the different azimuthal orientation is located intermediate two transitions of parallel azimuthal orientation, in the repeating pattern of at least three spaced apart the transitions.

Regarding claim 17: Molstad et al depicted in figure 9 that wherein the linear data storage medium comprises a magnetic tape (element 504 in figure 9), and wherein the at least three spaced apart the transitions each comprises a magnetic transition on the magnetic tape (see the associated descriptions for details).

Regarding claim 18: Molstad et al discloses a sensible transition pattern (as depicted in figure 6B) for recording servo information in a linear direction on a linear data storage medium (tape) defining at least one linear servo track (element 27 in figure 6B), the sensible transition pattern included of a timing based servo pattern (see col. 1, lines 6-10 and col. 2, lines 29-47) of a repeating cyclic periodic sequence of transitions of two different azimuthal orientations that extend laterally of the linear servo track, the timing based servo track sensed during movement of the linear data storage medium in

the linear direction by determining lateral positioning with respect to the linear servo track based on a measure of time between two the transitions having different azimuthal orientation (col. 8, line 27 to col. 9, line 43) as compared to time between two the transitions having parallel azimuthal orientation (elements 312 and 316 as depicted in figure 6B), including:

a repeating pattern (as depicted in figure 6B) of at least three spaced apart the transitions of the two different azimuthal orientations (elements 312 and 314 as depicted in figure 6B) that extend laterally of the linear servo track, two of the transitions of parallel azimuthal orientation (elements 312 and 316 as depicted in figure 6B), and at least one of the transitions of a different azimuthal orientation than the two transitions of parallel azimuthal orientation (as depicted in elements 301, 312, 314 and 316 of figure 6B);

at least three spaced apart the transitions simultaneously written to fix a distance between the simultaneously written transitions having different azimuthal orientation and to fix a distance between the simultaneously written transitions having parallel azimuthal orientation, thereby defining the distance between transitions having different azimuthal orientation and the distance between transitions having parallel azimuthal orientation , wherein the transitions are arranged in sets of transitions, forming the repeating pattern, the sets of transitions spaced to prevent overwritten transitions of one the repeating pattern by another (in col. 12, line 51 to col. 13, line 9; col. 13, lines 18-67 and col. 14, lines 44-61 where Molstad et al describes the writing of the servo patterns with the

simultaneously activations of the write gaps in the tape drive and repeating the process along the length of the tape).

Regarding claim 22: Molstad et al disclose a magnetic tape (element 20 in figure 2) medium having prerecorded servo information (element 300 in figure 6B) recorded in a linear direction in magnetic transition patterns (element 301 in figure 6B) defining at least one linear servo track (element 27 in figure 6B), the magnetic transition pattern comprised of a timing based servo pattern of a repeating cyclic periodic sequence of magnetic transitions of two different azimuthal orientations (elements 312 and 314 as depicted in figure 6B) that extend laterally of the linear servo track, the timing based servo track sensed during movement of the magnetic tape medium in the linear direction by determining lateral positioning with respect to the linear servo track based on a measure of time between two the magnetic transitions having different azimuthal orientation (col. 8, line 27 to col. 9, line 43) as compared to time between two the magnetic transitions having parallel azimuthal orientation (element 312 and 316 as depicted in figure 6B), including:

a repeating pattern (element 301 in figure 6B) of at least three spaced apart the magnetic transitions of the two different azimuthal orientations that extend laterally of the linear servo track, two of the magnetic transitions of parallel azimuthal orientation, and at least one of the magnetic transitions of a different azimuthal orientation than the two magnetic transitions of parallel azimuthal orientation;

at least three spaced apart the magnetic transitions simultaneously written to fix a distance between the simultaneously written magnetic transitions having different

azimuthal orientation and to fix a distance between the simultaneously written magnetic transitions having parallel azimuthal orientation, thereby defining the distance between magnetic transitions having different azimuthal orientation and the distance between magnetic transitions having parallel azimuthal orientation (in col. 12, line 51 to col. 13, line 9; col. 13, lines 18-67 and col. 14, lines 44-61 where Molstad et al describes the writing of the servo patterns with the simultaneously activations of the write gaps in the tape drive and repeating the process along the length of the tape).

Regarding claim 23: Molstad et al depicted in figure 6B that wherein at least one the magnetic transition of the different azimuthal orientation is located intermediate the two magnetic transitions of parallel azimuthal orientation, in the repeating pattern of at least three spaced apart the magnetic transitions.

Regarding claim 24: Molstad discloses a magnetic tape (element 20 in figure 2) medium having prerecorded servo information (element 300 in figure 6B) recorded in a linear direction in magnetic transition patterns (element 301 in figure 6B) defining at least one linear servo track (element 27 in figure 6B), the magnetic transition pattern comprised of a timing based servo pattern of a repeating cyclic periodic sequence of magnetic transitions of two different azimuthal orientations (elements 312 and 314 as depicted in figure 6B) that extend laterally of the linear servo track, the timing based servo track sensed during movement of the magnetic tape medium in the linear direction by determining lateral positioning with respect to the linear servo track based on a measure of time between two the magnetic transitions having different azimuthal orientation (col. 8, line 27 to col. 9, line 43) as compared to time between two the

magnetic transitions having parallel azimuthal orientation (element 312 and 316 as depicted in figure 6B), including:

a repeating pattern (element 301 in figure 6B) of at least three spaced apart the magnetic transitions of the two different azimuthal orientations that extend laterally of the linear servo track, two of the magnetic transitions of parallel azimuthal orientation, and at least one of the magnetic transitions of a different azimuthal orientation than the two magnetic transitions of parallel azimuthal orientation;

at least three spaced apart the magnetic transitions simultaneously written to fix a distance between the simultaneously written magnetic transitions having different azimuthal orientation and to fix a distance between the simultaneously written magnetic transitions having parallel azimuthal orientation, thereby defining the distance between magnetic transitions having different azimuthal orientation and the distance between magnetic transitions having parallel azimuthal orientation, wherein said magnetic transitions are arranged in sets of magnetic transitions, forming the repeating pattern, the sets of magnetic transitions spaced to prevent overwritten magnetic transitions of one the repeating pattern by another orientation (in col. 12, line 51 to col. 13, line 9; col. 13, lines 18-67 and col. 14, lines 44-61 where Molstad et al describes the writing of the servo patterns with the simultaneously activations of the write gaps in the tape drive and repeating the process along the length of the tape).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims (5-7, 12-14, 19-21 and 25-27) are rejected under 35 U.S.C. 103(a) as being unpatentable over Molstad et al (6542315).

Regarding claims 5-7: the reason for Molstad et al is stated in rejections above. Molstad et al is silent on the capability of writing different number of transitions in the servo patterns. However, it would be obvious to one of ordinary skill in the art at the time of the invention was made to be able to write a different number of the transitions in the servo patterns (in col. 11, line 49 to col. 12, line 20; col. 12, line 51 to col. 13, line 9; col. 13, lines 18-67 and col. 14, line 62 to col. 15, line 23 where Molstad et al describes how the servo patterns are produced and how many of the transitions pattern lines within the pattern could be programmatically written. Thus, the different numbers of the transitions within the pattern are known). The rationale is as follows: one of ordinary skill in the art at the time of the invention was made would have been motivated to write the different number of the transition lines in the servo pattern because it would provide more accuracy in the determination of the position of the servo head as suggested in col. 14, lines 1-3 of Molstad et al or to provide a different type of signal sources and a different number of sampling sizes in order to more accurately determine the head true position.

Regarding claims 12-14: method claims (12-14) are drawn to the method of using the corresponding apparatus claimed in claims (5-7). Therefore method claims (12-14) correspond to apparatus claims (12-14) and are rejected for the same reasons of obviousness as used above.

Regarding claims 19-21: claims (19-21) have limitations similar to those treated in the above rejections, and are met by the reference as discussed above. Claim 19 however also recites the following limitations of the sensible transitions that are depicted in figure 6b of Molstad et al (see associated descriptions for details).

Regarding claims 25-27: claims (25-27) have limitations similar to those treated in the above rejections, and are met by the reference as discussed above. Claim 25 however also recites the following limitations of the magnetic tape that is depicted as element 20 in figure 2b of Molstad et al (see associated descriptions for details).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Wong whose telephone number is (703) 305-7772.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Hudspeth can be reached on (703) 308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kw

20 May 04

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